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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,678	01/15/2004	Kenny Randolph Parker	80002/US01	6078

7590 12/08/2004

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EXAMINER	
BOYKIN, TERRESSA M	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/758,678	PARKER ET AL.	
	Examiner	Art Unit	
	Terressa M. Boykin	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 March 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-45 are rejected under 35 U.S.C. 102(e) as being anticipated by US 20040176635.

US 20040176635 discloses a process by which a carboxylic acid/diol mixture is obtained from a carboxylic acid/solvent slurry without isolation of a substantially dry carboxylic acid solid. More specifically, the present invention relates to a process by which a terephthalic acid/diol mixture suitable as a starting material for polyester production is obtained from a terephthalic acid/solvent slurry without isolation of a substantially dry terephthalic acid solid.

In another embodiment, the reference discloses a process for producing a carboxylic acid/diol mixture is provided, the process comprising the following steps:

(a) removing in a first solid-liquid separation device impurities from a carboxylic acid/solvent slurry to form a carboxylic acid cake with acetic acid

and a solvent mother liquor stream.

(b) removing a substantial portion of a solvent in a second solid-liquid separation device from the carboxylic acid cake with acetic acid to form a water-wet carboxylic acid cake and a solvent/water byproduct liquor.

(c) adding a diol to the water-wet carboxylic acid cake in a carboxylic acid/diol mixing zone to remove a portion of the water to form the carboxylic acid/diol mixture.

With regard to claims 2, 3, 5, 7, 8, 10, 12, 13, 15, 17,18, 24, 25, 26, 30, 31, 35, 36, 38, 44 specifically the reference discloses a process by which a carboxylic acid/diol mixture is obtained from a carboxylic acid/solvent slurry without isolation of a substantially dry carboxylic acid solid. More specifically, the reference relates to a process for the production of a terephthalic acid/ethylene glycol mixture suitable as feedstock for the production of commercial PET. Specifically, the reference incorporates a direct displacement of water with ethylene glycol. Incorporation of the displacement step eliminates the need to isolate a purified terephthalic acid solid thereby eliminating the need for crystallization, solid-liquid separation, and solids handling equipment normally found in commercial purified terephthalic acid processes.

With regard to claims 4, 9, 14, 19, 32, 37, and 45, the reference discloses in the figure 1 a water-wet carboxylic acid cake 106, which is now substantially free of solvent is combined with a diol 107 in a carboxylic acid mixing zone 130, to form a carboxylic acid/diol mixture 108 suitable for PET production and other polyesters in device 130. Conduit 109 is used to remove the portion of water from the water-wet carboxylic acid cake 106. There are no special limitations on the device 130 with the exception that it

must provide intimate contact between the water-wet carboxylic acid cake 106, and the diol 107 to produce a the carboxylic acid/diol mixture 108. Examples of such devices include, but are not limited to the following: an agitated vessel, static mixer, screw conveyor, PET esterification reactor(s), etc.

With regard to claims 21, 22, 23, 28,29, 40, 41 and 42, there are no limitations on the temperature or pressure of the wash water including the use of vaporized water, steam, or a combination of water and steam, as wash. However the reference does disclose that it is preferable that the temperature of device 130 does not exceed approximately 280 C., temperatures normally found within PET esterification reactors.

Thus, the reference discloses a method for producing a carboxylic acid/diol mixture prepared from the same components as claimed by applicants. Thus in view of the above, there appears to be no significant difference between the reference(s) and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

Double Patenting

Claims 1-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-47 of copending Application No. 10758676. This is a provisional double patenting rejection since the conflicting claims have not yet been patented. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of **USP 10758676** recite a

process wherein liquor exchange zone impurities are removed from a carboxylic acid slurry to form a water-wet carboxylic acid cake, a mother liquor stream, a solvent/water byproduct liquor stream; wherein the solvent or water is added counter current to the flow of said carboxylic acid slurry etc.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See also MPEP § 804.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

35 USC 103

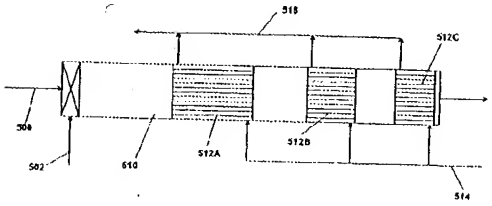
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 46 – 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPub 20040176635 in view of USP 6307099 see abstract, claims.

The reference USPub 20040176635 discloses a process by which a carboxylic acid/diol mixture is obtained from a carboxylic acid/solvent slurry as claimed by applicants except for the adding of the solvent counter current to the flow of the slurry or cake carboxylic acid product. However, **USP 6307099** which is directed to an aromatic carboxylic acid such as terephthalic acid is produced by the liquid phase oxidation of a precursor thereof, the oxidation being carried out in such a way that substantially all of the aromatic carboxylic acid produced in the course of the reaction is maintained in solution during the reaction further discloses therein a method of removing the heat of reaction while securing a desired reactor outlet temperature is illustrated schematically in FIG. 8:

FIGURE 8



In this embodiment above , non-adiabatic/non-isothermal operation of the reactor system 510, supplied with reactant/solvent/recycle feeds 500, 502 is secured by internal cooling using one or more heat exchange means 512A, 512B, 512C . . . through which a suitable coolant, e.g. boiler feed water or mineral oil supplied by line 514, is circulated internally within the reactor system. As illustrated the heat exchangers are in the form of banks of tubes, the coolant flow being circulated through the tubes in co-current or counter-current relation with the flow of reaction medium through the reactor system. Where the coolant comprises water, the coolant may be removed as steam via line 518. The coolant used may alternatively be one of the streams employed in the process, e.g. the paraxylene feed, mother liquor recycle (before or after oxygen addition and dissolution), so that the heat recovered is employed for instance in raising the temperature of one or more of the feeds supplied to the reactor inlet. Precipitation of terephthalic acid onto the heat exchange surfaces may be avoided by suitable choice of number, size and location of cooling tubes or coils,

solvent:precursor ratio, solvent operating temperatures, steam raising temperature and flow pattern. In the latter context, the coolant may flow countercurrent and/or co-current relative to the reaction medium; however, co-current flow is preferred. In FIG. 8, the reactor system may be constituted for example by a single plug flow reactor or it may comprise two or more plug flow reactors, one or more of which is provided with a heat exchanger as described above to regulate temperature.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the countercurrent relationship of the flow medium wherein the coolant would comprise water to that of the process **in USPub 20040176635** since such method of employing a countercurrent flow is described in Figure 8 as being a superior and more effective coolant method therein. Consequently, the claimed invention cannot be deemed as unobvious and accordingly is unpatentable.

Correspondence

Please note that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants may be referred to the Electronic Business Center (EBC) at http://www.uspto.gov/ebc/index.html or 1-866-217-9197.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is

571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is **(571-272-1700).**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb

Examiner Terressa Boykin
Primary Examiner
Art Unit 1711